

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KETAN DALAL and RAJA KRISHNASWAMY

Appeal No. 2001-2581
Application No. 08/847,124

ON BRIEF

Before HAIRSTON, KRASS and BLANKENSHIP, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-22.

The invention pertains to object-oriented programming techniques. In particular, the invention locates enclosing objects, providing a computer-based method and system for identifying the most-enclosing object that encloses an object of

a class. When an object of the class is instantiated within an enclosing object, the system sets a data member of the instantiated object to indicate an offset between the start of the instantiated object to the start of a nearest enclosing object. When an object of a class is not instantiated within an enclosing object, the system sets the data member of the instantiated object to indicate a zero offset. When the system receives a reference to an instantiated object, the system repeats the following until the reference points to a most-enclosing object. The system retrieves the offset from the object referenced by the current value of the reference. The system combines the retrieved offset with the current value of the reference to generate a new reference that references the nearest enclosing object of the previously referenced object. When the offset is zero, then the reference points to the most-enclosing object.

Representative independent claim 12 is reproduced as follows:

12. A method in a computer system for generating a reference to an enclosing object from a reference to an embedded object that is embedded within the enclosing object, the enclosing object having an enclosing class, the embedded object having an embedded class, the embedded class having an offset

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data member, the offset data member containing a difference between an object address of the enclosing object and an object address of the embedded object, the method comprising:
receiving a reference to the embedded object;

retrieving from the offset data member of the embedded object referenced by the received reference the difference between the enclosing object address and the embedded object address; and

combining the retrieved difference with the embedded object address of the received reference to generate the enclosing object address.

The examiner relies on the following references:

McGurrin et al. (McGurrin) 5,913,063 Jun. 15, 1999
(filed Feb. 26, 1997)

Aho et al. (Aho), "Compilers Principles, Techniques, and Tools," Addison-Wesley Publishing Co., pp. 446-456 (1986, reprinted with corrections March, 1988).

Claims 1-22 stand rejected under 35 U.S.C. § 103 as unpatentable over McGurrian in view of Aho.

Reference is made to the briefs and answer for the
respective positions of appellants and the examiner.

OPINION

In rejecting claims under 35 U.S.C. 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071,

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1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teachings, suggestions or implications in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the

arguments. See Id.; In re Hedges, 783 F.2d 1038, 1040, 228 USPQ 685, 687 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 146-147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR 1.192 (a)].

In the instant case, the examiner applies McGurrian against claim 12, for example, by contending that McGurrian's computer system generates a reference to an enclosing object (parent data structure) from a reference to an embedded object (current data structure) that is embedded within the enclosing object, the enclosing object having an enclosing class (parent class), the embedded object having an embedded class (associated class to current data structure), and the embedded class having a data member (parent pointer). The examiner contends that McGurrian's method comprises receiving a reference to the embedded object (reading the attribute and property values from the current data structure), and retrieving from the data member of the embedded object (current data structure) referenced by the received reference the enclosing object address (parent pointer) (column

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12, lines 14-25). The examiner recognizes that McGurkin does not teach the use of an offset in order to reference the enclosing object.

Thus, the examiner turns to Aho for a teaching of an embedded class (child node) having an offset data member and the step of retrieving "this difference and combining it to the embedded object address (name) to generate the enclosing object address (name of leader/name of parent) (pg. 449; Fig. 7.46; "...we can discover that A is located 10 positions before D, since the sum of the offsets on the path from A to D is $100 + (-110) = -10$.") (answer-page 3).

Therefore, concludes the examiner, it would have been obvious to combine the teachings of McGurkin and Aho "in order to facilitate direct addressing using offsets" (answer-page 3).

It is our view that the examiner has not established a prima facie case of obviousness.

While we have serious doubts about McGurkin disclosing the claimed enclosing objects and embedded objects alleged by the examiner, in view of appellants' explanation of enclosing/embedded objects in comparison to the parent/child relationships of McGurkin, even if we assumed, arguendo, that

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McGurrin discloses what is alleged by the examiner, the combination with Aho is faulty.

As recognized by the examiner, McGurrin fails to teach the use of an "offset data member," as set forth in each and every claim on appeal. While independent claim 1 does not use those words, it, too, describes this offset by reciting the storing of an indication "of a difference between the enclosing object address and the embedded object address."

The examiner's reliance on Aho to supply this deficiency of McGurrin is misplaced because Aho is directed to storage allocation in the Fortran computer language. As is well known, Fortran is not an object-oriented programming language. Accordingly, Aho would suggest nothing relative to embedded or enclosing objects, as claimed. Therefore, there would have been no reason for the artisan to modify the object-oriented language technique of McGurrin by any teaching of Aho relative to Fortran. While Aho does teach offsets between nodes in a tree, this is not suggestive of the offsets claimed by appellants regarding retrieving a difference from a data member of an embedded object in an object-oriented programming language.

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Accordingly, the examiner's decision rejecting claims 1-22
under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	
ERROL A. KRASS)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

EK/RWK

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